

THE FISHES OF UNION ISLAND, GRENADINES, BRITISH
WEST INDIES, WITH THE DESCRIPTION OF A
NEW SPECIES OF STAR-GAZER.¹

WILLIAM BEEBE, Sc.D.

Director, Department of Tropical Research
and

GLORIA HOLLISTER, M.A.

Research Associate, Department of Tropical Research

(Figs. 26 and 27)

INTRODUCTION

Union Island is one of the Grenadines, and one of the few with a satisfactory anchorage. Until now, no faunal fish list of this locality has been published. On the yacht *Antares*, under the aegis of Colonel and Mrs. Edwin M. Chance, we spent parts of six days, July 6 to 11, 1932, anchored in Chatham Bay, off the west shore. In 48 daylight working hours Miss Hollister and myself caught or observed 110 species of fish. We used water-glass and diving helmet, traps, seines, hooks and trolling spoons. The fifteen inches of tide at this place resulted in a complete absence of tidepools.

Two years later, on a second visit of the *Antares* to the island, eight additional species were obtained by the Chances, including a new species of star-gazer. This brings the total number to 118 species. Flyingfish have not been included in this list.

Union Island is well wooded, with a jagged central ridge, one peak of which reaches 1,000 feet elevation. Chatham Bay on the south side, where all the collecting was done, is an open semicircle, the land rising steeply in all directions. The narrow beach is part sandy, part rocky. At the northern entrance is a small islet, which from its complete drapery of *Cereus* we called Medusa Island. Just beyond we found a small bay with a circular coral reef in two to four fathoms. Here we did all of our diving.

Union Island, which is about two miles in diameter, is centered at 12° 36' N. Lat. and 61° 26' W. Long., and it is about twenty miles north of Grenada.

LIST OF FISHES OF UNION ISLAND, GRENADINES

DASYATIDAE

Dasyatis americana Hildebrand & Schroeder

One caught in big seine pulled in Chatham Bay, July 8, 1932. Length disk 290, tail 385, total 675 mm.; width disk 330 mm. Color olive green above.

MOBULIDAE

Manta birostris (Walbaum)

Twelve small devilfish were seen resting on the sandy bottom off Frigate Islet, on July 11, 1932. They moved slowly away as the shadow of our launch struck them. They were four to six feet across.

¹ Contribution No. 480, Department of Tropical Research, New York Zoological Society.



Fig. 26. Panorama of Chatham Bay, Union Island, with the *Antares* at anchor. (Photograph by Gloria Hollister)

MEGALOPIDAE

Tarpon atlanticus (Cuvier & Valenciennes)

Four seen in twenty-five feet of water near shore off Medusa Islet, July 6, 1932, and on several other days. Only visible when we were down in the diving helmet. They were quite fearless, passing within ten feet, and all about the same size, six feet in length.

In spite of every effort on the part of our expert tarpon fishermen, none could be persuaded to rise to any bait or lure.

ALBULIDAE

Albula vulpes (Linnaeus)

Two leptocephalus larvae caught with dip-net near night light, July 6 and 7, 1932. Lengths 57 and 60 mm.

Two adults taken in seine, July 8, 1932. Lengths 177 and 180 mm.

CLUPEIDAE

Harengula macrophthalmus (Ranzani)

Hundreds caught in several seinings, July 6 and 8, 1932. Lengths 80 to 100 mm.

Several taken with dip-net from *Antares* at night light. Length 26 mm. Scutes 17+13.

One specimen, July, 1934. Length 48 mm.

Sardinella aurita Cuvier & Valenciennes

Three caught in seine, July 8, 1932. Length 115 mm.

DUSSUMIERIIDAE

Jenkinsia lamprotaenia (Gosse)

Twenty-one caught with dip-net at night light, July 6 and 7, 1932. Lengths 20 to 26 mm.

ENGRAULIDAE

Anchoviella platyargyrea (Fowler)

One caught in seine, July 8, 1932. Length 54 mm.

Cetengraulis edentulus (Cuvier)

One specimen, July, 1934. Length 90 mm.

MURAENIDAE

Gymnothorax moringa (Cuvier)

One caught in wire trap at night, two fathoms down in Tarpon Bay, July 6, 1932. Length 720 mm.

One unidentifiable larval eel, food of *Parathunnus atlanticus* (Lesson). Length 50 mm.

SYNODONTIDAE

Synodus intermedius (Agassiz)

One caught trolling with a feather hook, July 8, 1932. Length 250 mm.

Trachinocephalus myops (Forster)

Three leptocephalus larval fish caught with dip-net near night light, July 6, 1932. Lengths 37 to 47 mm.

One adult caught in seine, July 8, 1932. Length 168 mm. In full breed-

ing condition, ovaries very large. The color is decidedly a striped, not a blotched, pattern. When viewed from above there are faint indications of nine or ten broad bands extending part way down the sides. The stripes consist of a band of turquoise blue, while above this are several alternating bands of pale straw and blue. Beneath, the bands become fainter until they disappear in the white of the belly. A conspicuous dark blotch lies partly beneath the upper area of the opercle. Eye silvery yellow. The food was a *Xyrichthys infirmus*, length 106 mm.

Two post-larval fish, length 40 mm., from the stomach of *Parathunnus atlanticus* (Lesson).

HEMIRHAMPHIDAE

Euleptorampus velox Poey

Two or three seen skipping over the surface of the water, July 11, 1932.

BOTHIDAE

Platophrys lunatus (Linnaeus)

One caught in seine July 8, 1932. Length 60 mm.

Platophrys spinosus (Poey)

One caught in seine July 8, 1932. Length 84 mm.; depth 46 (1.8); head 22 (3.8); eye 7.7 (3.8); dorsal 84; anal 61; lateral line pores 63.

This species has been synonymized by Metzelaar with *Platophrys ocellatus*, but the characters of our specimen compel us to keep it separate.

Platophrys ocellatus (Agassiz)

Six caught in seine, July 6 and 8, 1932. Lengths 16, 25, 37, 40, 158 and 165 mm.

Citharichthys microstomus Gill

One caught in seine, July 6, 1932. Length 38.5 mm.; depth 19.3 (2); head 9.5 (4); eye 2.7 (3.5); interorbital .8 (11.8); maxillary 2.3 (4); dorsal 71; anal 54; scales 34 pores; gill-rakers 7; pectoral short 6.6; lateral line almost straight; 9 rows of scales between lateral line and anal.

Although the vertical rows of scales are less than in typical *microstomus*, the fish seems to be too close otherwise to this form to be designated as a new species, especially on the basis of a single small individual.

HOLOCENTRIDAE

Holocentrus ascensionis (Osbeck)

Many seen with water-glass and when diving.

Myripristis jacobus Cuvier & Valenciennes

Several seen while diving.

SYNGNATHIDAE

Syngnathus elucens Poey

Four taken with dip-net near night light, July 6, 1932. Length 50 mm. Thirty-three young taken with dip-net at night light, July 10, 1932. Lengths 38 to 45 mm.

AULOSTOMIDAE

Aulostomus maculatus Valenciennes

Two young specimens caught in wire trap at night in two fathoms of water, July 9, 1932. Lengths 105 and 115 mm.

FISTULARIIDAE

Fistularia tabacaria Linnaeus

One caught in seine, July 9, 1932. Length 240 mm. plus a 75 mm. tail filament.

ATHERINIDAE

Atherina stipes (Müller & Troschel)

Twenty-one caught in seines, July 8, 1932. Lengths 40 to 60 mm.

MUGILIDAE

Querimana curema (Cuvier & Valenciennes)

Twenty-three caught in seines, July 6 and 8, 1932. Lengths 19 to 35 mm.

Ten adults taken in seine, July 9, 1932. One saved, length 207 mm.

Twenty-eight caught with dip-net near night light, July 7, 1932. Length 30 mm.

SPHYRAENIDAE

Sphyraena barracuda (Walbaum)

One caught trolling north of Medusa Island, July 9, 1932, at 11 A. M. Length 600 mm.

POLYNEMIDAE

Polynemus virginicus Linnaeus

Fifty-five caught in two seines in Chatham Bay, July 6 and 8, 1932. Lengths 40 to 60 mm.

CYBIIDAE

Scomberomorus regalis (Bloch) "Cero"

Thirteen caught trolling, July 6, 7, 8 and 11, 1932. Lengths 550 to 660 mm. Measurements of specimen 550 mm.: depth 108 mm. (5.1); head 128 mm. (4.4) eye 21 mm. (6); snout 54 mm. (2.3); dorsal XVII, 13-VIII; anal II, 16-VIII; gill-rakers 10.

Scomberomorus cavalla (Cuvier) "Kingfish"

Two caught on trolling line, July 8 and 11, 1932. *Antares* No. 50a: length 760 mm.; depth 140 mm.; head 171 mm.; eye 27 mm.; snout 70 mm.; dorsal XIV, 13-X; anal II, 16-IX; length of pectoral 102 mm.; gill-rakers 8; weight 12 pounds.

KATSUWONIDAE

Euthynnus alletteratus (Rafinesque)

One caught on trolling line, July 11, 1932. Length 700 mm.; depth 156 mm. (4.5); head 167 mm. (4.2); eye 24 mm. (7); snout 48 mm. (3.5); maxillary 62 mm. (2.7); dorsal XVI-12-VIII; anal 12-VII; gill-rakers 28; weight 7 pounds. Five spots below pectorals, not as large as pupil. Large trematode in extreme end of stomach.

THUNNIDAE

Parathunnus atlanticus (Lesson)

One caught on trolling line, July 11, 1932. Female, breeding; length 570 mm.; depth 155 mm. (3.6); head 173 mm. (3.3); eye 32 mm. (5.4); snout 56 mm. (3); maxillary 70 mm. (2.4); dorsal XIV, 13-VIII; anal 10-VIII; gill-rakers 18; length of pectoral 155 mm. (in head 1.1, in length 3.7); weight 4 pounds. Dark bronze above, bright yellow along sides, shading below into silvery from head to tail. Pectoral bright yellow, with broad jet black tip. Many hundreds of caecae. Ovary 130 mm. by 30 mm. Food

in stomach: two post-larval *Trachinocephalus myops* 40 mm. (in the stomach of one of these in turn was a young eel, 50 mm. long); one larval eel 50 mm.; several shrimps and one large carapace of a shrimp.

CARANGIDAE

Caranx (Xurel) latus Agassiz

Thirty-two specimens caught in four seines in Chatham Bay, July 6 and 8, 1932. Lengths 40 mm. to 250 mm. Individual lengths are as follows:

2	fish of	40	mm.
18	" "	50	"
3	" "	70	"
1	" "	80	"
1	" "	135	"
1	" "	140	"
6	" "	250	"

A large, white, parasitic Isopod, *Cymothoa oestrum* (Linnaeus) in the mouth of the 135 mm. specimen.

Four specimens caught with hook and line off *Antares*, July 6, 1932. Length 450 mm.

Five specimens caught on trolling line, July 7 and 8, 1932. Average length 570 mm.

One specimen caught with dip-net near night light, July 7, 1932.

Color note for *Antares* No. 40, length 140 mm.: 1st dorsal dusky and tip of 2nd dorsal black; caudal lemon yellow with dusky tips; anal yellow for basal two-thirds.

One specimen, July, 1934. Length 38 mm.

Caranx (Paratractus) crysos (Mitchill)

One caught in a seine, July 8, 1932. Length 135 mm.

One caught trolling, July 7, 1932. Length 480 mm.; depth 145 mm. (3.3); head 133 mm. (3.6); eye 22 mm. (6); snout 45 mm.; dorsal VII-I, 23; anal II-I, 19; pectoral length 134; gill-rakers 26. Pectoral reaches almost to anal fin.

Caranx (Elaphotoxon) ruber (Bloch)

One caught in a seine, July 8, 1932. Length 90 mm.

Caranx (Elaphotoxon) bartholomaei (Cuvier & Valenciennes)

Two caught in a seine, July 8, 1932. Lengths 102 and 130 mm.

Decapterus punctatus (Agassiz)

One caught in a seine, July 8, 1932. Length 135 mm. Color typical for this species except for a distinct greenish line down the side.

Trachinotus palometa Regan

One caught in seine, July 6, 1932. Length 140 mm. Showed great viability under adverse conditions. Side view wholly silvery with three long vertical dark bands and two very short bands. Falcate portions of vertical fins black, basal part of falcate fins a rich coppery brown. Outer caudal rays black. Iris silvery.

Trachurops crumenophthalma (Bloch)

The most abundant fish in seines. Eight hundred taken in one haul of the seine along shore, July 8, 1932. Lengths 95 to 140 mm. Color steel blue above, a faint golden line down side, remainder silver.

Vomer setapinnis cubensis Nichols

One specimen, July, 1934. Length 75 mm.

APOGONIDAE

Apogon maculatus (Poey)

Several seen with water-glass and when diving.

Apogon sellicauda Evermann & Marsh

One specimen, July, 1934. Length 18 mm.

EPINEPHELIDAE

Trisotropis bonaci (Poey)

Seen many times with the water-glass and when diving.

Rypticus saponaceus (Bloch & Schneider)

Two seen while diving near Medusa Island.

Cephalopholis fulvus (Linnaeus)

Two caught with hook and line off *Antares*, July 6, 1932. Length 180 mm. Color: pale henna body, with small turquoise spots scattered evenly over head, body and dorsal fin; iris scarlet; two small, jet black spots on upper side of caudal peduncle; pectoral with broad margin of orange; terminal half of ventrals and anal dark.

SERRANIDAE

Hypoplectrus unicolor (Walbaum)

Several seen while diving near Medusa Island.

PEMPHERIDAE

Pempheris schomburgki Müller & Troschel

One taken in tidepool near Medusa Island, July 9, 1932. Length 14.2 mm.; depth 6.3 mm.; head 6.1 mm.; eye 2.4 mm.; snout 1.5 mm.; dorsal 13; anal III, 23.

LUTIANIDAE

Lutianus synagris (Linnaeus)

Twenty-three caught in three seines, July 6, 1932. Lengths 22 to 105 mm.

One caught in a trap in Chatham Bay, July 11, 1932. Length 270 mm. Dorsal X, 12; anal III, 8; gill-rakers 9. All fins and iris scarlet; golden lines on side parallel with body; in general it is decidedly a pink fish.

Lutianus mahogoni (Cuvier & Valenciennes)

One dredged near shore in Chatham Bay, July 11, 1932. Length 26.2 mm.

Several adults seen while diving near Medusa Island.

Rhomboplites aurorubens (Cuvier & Valenciennes)

Five caught in a trap in Chatham Bay, in 15 fathoms, July 11, 1932. Length 175 mm.; dorsal XII, 12; anal III, 8; gill-rakers 18. Upper part of head and body deep pink, fading into pinkish white on sides and below; iris scarlet; dorsal fin translucent pinkish with very narrow orange red border; fins tinged with pink; caudal fin deep pink at base deepening into scarlet toward tip; about eight irregular gold lines along body below lateral line, slanting upward and backward. Scales 53.

Ocyurus chrysurus (Bloch)

Three caught in seine, July 8, 1932.

Seventy-three caught in wire trap, July 6, 1932. Lengths 55 to 90 mm.

HAEMULIDAE

Haemulon sciurus (Shaw)

Several seen while diving and with the water-glass.

Haemulon plumieri (Lacépède)

Several seen while diving and with the water-glass.

SPARIDAE

Calamus calamus (Cuvier & Valenciennes)

One caught on hook and line off the *Antares*, July 6, 1932. Length 310 mm.

Calamus bajonado (Bloch & Schneider)

Three caught in seine, July 8, 1932. Length 74 mm. Violet bar extends forward on the snout.

GERRIDAE

Eucinostomus gula (Cuvier & Valenciennes)

Two caught in a seine, July 8, 1932. Lengths 115 and 140 mm.

Eucinostomus californiensis (Gill)

Three caught in three seines, July 6, 1932. Length 90 mm. Tip of high dorsal spine black.

Ulaema lefroyi (Goode)

One caught in seine, July 8, 1932. Length 115 mm.

MULLIDAE

Upeneus maculatus (Bloch)

Three caught in wire trap, July 6, 1932. Length 80 mm.

Four caught in three seines, July 6 and 8, 1932. Lengths 100 and 130 mm.

SCIAENIDAE

Eques pulcher Steindachner

One specimen, July, 1934. Length 35 mm. The filaments of the dorsal reached the caudal peduncle.

CHAETODONTIDAE

Holocanthus tricolor (Bloch)

One specimen caught in trap in Chatham Bay, July 11, 1932. Length 165 mm. Anterior third of body a bright yellow, excepting the jaws which are black, and the spines of the preopercle and the skin margin of the branchiostegals showing under the opercle, which are a bright orange. The first five dorsal spines are bright yellow. The posterior two-thirds of the body is black. This area begins at the 5th dorsal spine and extends downward with a slight slant toward the head, to just above the spine of the opercle. Here the margin of the black slants posteriorly and parallels the base of the pectoral, and then continues in an uneven line, extending downward to the 3rd anal spine. The pectorals and ventrals are bright yellow. The dorsal is solid yellow through the first three spines. The upper third of the fourth web is bright orange. This orange band extends along the whole dorsal fin, becoming narrower posteriorly. The lower third of the web of the 5th spine is black, which color broadens on the sixth web and covers it. The produced tip of the dorsal is bright yellow and the posterior edge of the fin has a narrow yellow band. The 1st and 2nd spines of the anal are

bright orange. The 3rd spine is orange with a dusky tinge. The margin of the ventral fin has a narrow orange band shading into yellow on the produced filament. The posterior margin of the anal fin is bright yellow. The caudal is bright yellow from the vertical of the narrow yellow edge of the dorsal and anal fins. The entire caudal is dotted with many small bright orange dots and the outer edges are banded with orange. The iris has two rich, bright blue bars, one dorsal and one ventral, and two yellow bars, one anterior and one posterior.

Chaetodon striatus Linnaeus

Several seen while diving and with the water-glass.

Chaetodon bimaculatus Bloch

Several seen while diving and with the water-glass. Twice at Medusa Reef saw a *Chaetodon* without bars or ocelli, but this was only a glimpse.

Angelichthys ciliaris (Linnaeus)

Several seen while diving and with the water-glass.

Pomacanthus paru (Bloch)

Several seen while diving and with the water-glass.

Pomacanthus arcuatus (Linnaeus)

Two seen while diving.

ACANTHURIDAE

Acanthurus bahianus Castelnau

Two specimens from a trap, July 11, 1932. Length 95 mm.

Acanthurus hepatus (Linnaeus)

One specimen from a trap, July 11, 1932. Length 190 mm.
One specimen, July, 1934. Length 30 mm.

Acanthurus caeruleus Bloch & Schneider

Several seen while diving and with the water-glass.

Acanthurus heliodes Barbour

Several seen while diving and with the water-glass. Possibly a yellow phase of *Acanthurus caeruleus*.

SCORPAENIDAE

Scorpaena albofasciata Metzelaar

One specimen from tidepool near Medusa Island, July 9, 1932. Length 13.5 mm.; depth 5.7 mm. (2.3); head 6.4 mm. (2.1); eye 2 mm. (3.2); snout .75 mm. (8.5); dorsal XI, 10; anal III, 5; scales 22 (pores); pectoral length 5 mm. Color of the entire body black; broad tips of pectorals and dorsal rays, and caudal white; caudal with bars and subterminal band black; entire caudal peduncle creamy white, including the parts of the dorsal and anal entering the vertical of this area.

POMACENTRIDAE

Abudefduf marginatus (Bloch)

Three caught in tidepools, and two from a very shallow pool made by a raised reef on beach of Chatham Bay. Large sized ones seen while diving and with the water-glass, July 6 and 9, 1932. Lengths 10 and 20 mm.

All of this species had much less green, and were more of a mono-

chrome creamy brown in general than those from Antigua and northward to Bermuda.

Abudefduf analogus (Gill)

Four young caught in tidepools, July 9, 1932. Lengths 13, 14, 15 and 16 mm. Length 15 mm.; depth 6 mm.; dorsal XII, 14; anal II, 10. The general shape is the same as in *marginatus*. The color of the background is pale grayish green turning into a light yellow on upper two-thirds, where there are five broad, dark brown, vertical bands; the top of the head is dark and there is a dark spot on the top of the caudal peduncle; the spiny dorsal is dusky brown; the soft dorsal is white, except the base, which is dusky; caudal and pectorals are white; the pectorals are tinged with dusky, with the outer rays prolonged; the iris is pale iridescent-yellowish green. One specimen, July, 1934. Length 26 mm.

Stegastes niveatus (Poey)

Several seen while diving and with the water-glass.

Stegastes chrysurus Bean

Several seen while diving and with the water-glass.

Demoisellea cyanea Poey

Several seen while diving and with the water-glass.

Demoisellea marginatus (Castelnau)

Several seen while diving and with the water-glass.

Eupomacentrus leucostictus (Müller & Troschel)

Several seen while diving and with the water-glass.

Eupomacentrus fuscus (Cuvier & Valenciennes)

Several seen while diving and with the water-glass.

Eupomacentrus sp.?

One specimen at night light of *Antares*, July, 1932. Length 10.6 mm.; depth 5.5 mm. (1.93); head 4.9 mm. (2.16); eye 1.61 mm. (3); snout 1.13 mm. (4.75); dorsal XII, 16; anal II, 14½; scales 27; gill-rakers 11; pores in lateral line 17; scales ctenoid, preopercle finely serrate. Scales of anterior upper sides and also upper part of brain-case with dark pigment. Dorsal spines with an occasional pigment spot; small pigment spots on outer portion of pectoral fin; remaining fins colorless; body otherwise colorless except for the pink of the abdomen which shows through the skin.

Eupomacentrus rubridorsalis Beebe & Hollister

The type of this species is a specimen taken in Chatham Bay, near shore, on July 9, 1932. Length 15.5 mm. Described in ZOOLOGICA, Vol. XII, No. 9. Its measurements and coloration are identical with those of a second specimen from Antigua. The body is bluish gray after death, darker blue before; upper head and back above lateral line scarlet, thickly flecked with black; dorsal spines solid scarlet; dorsal rays and anal dusky at base, becoming translucent bluish; very large ocellus, larger than eye, at junction of dorsal spines and rays, consisting of a large, jet black center, surrounded by a ring of turquoise with a narrow outer frame of black. Turquoise spots, framed in black, as follows (number and arrangement identical with those on the second specimen from Antigua): 2 between upper lip and upper eye; 5 surrounding eye; 3 on opercle; 8 in a line from eye almost to ocellus; 3 large spots on each side of top of head, 1 obliquely above and in front of eye, 1 above eye, and 1 on nape; 5 in iris, upper 2 larger and stronger and connecting the dorsal and dorsal lines; 2 at base of posterior dorsal rays; 2 at base of posterior anal rays.

There is a second ocellus, one-third as large as the dorsal one, on the upper peduncle. The iris, aside from the turquoise spots, is golden.

LABRIDAE

Bodianus rufus (Linnaeus)

Several seen while diving.

CORIDAE

Iridio garnoti (Cuvier & Valenciennes)

Several seen through the water-glass and while diving.

Iridio bivittata (Bloch)

One specimen caught in tidepool, July 9, 1932. Length 73 mm. Many others seen while diving and with the water-glass. .

Thalassoma bifasciatum (Bloch)

Two specimens from tidepool; many seen while diving, July 9, 1932. Length 25 mm. Dorsal VIII, 11½; anal 13 elements. Upper dorsal surface, and two-thirds of dorsal fin, black. A very broad black line covers the lores, and extends back through the eye and along the entire body. Upper fifth of dorsal spines and upper half of dorsal rays colorless and transparent. Basal half of anal pinkish, distal half colorless and transparent. Space between dorsal and lateral line black; upper lores and over eye, back to and including upper half of peduncle, bright lemon yellow, this color also extending around base of caudal fin. Lips and back to eye, lemon yellow; anterior under parts dead white; posterior flecked with pink. A faint spot between 5th and 6th dorsal spines. Black band crossing opercles shows distinct pinkish tinge. Iris golden yellow with narrow central ring of red.

Xyrichtys psittacus (Linnaeus)

Two specimens caught in seine, July 9, 1932. Length 113 mm. All fins pink; verticals with irregular alternate blue and yellow stripes. Body olive green on upper back, pale greenish white on sides and belly. Head with irregular oblique lines of turquoise and gold; on the mid-body a broad oblique band of crimson extending from the back three-quarters of the way down. One fish has an irregular elongated patch of iridescent pale turquoise along side of body from half way along the ventrals to beginning of anal.

Xyrichtys splendens Castelnau

Fifteen specimens taken in a seine, July 9, 1932. Length 108 mm. These wrasse have almost no pink on any of the fins.

Xyrichtys infirmus Bean

One specimen from a seine, and one from the stomach of *Trachinocephalus myops*, July 8, 1932. Lengths 95 and 106 mm.

Specimen No. 61: Length 95 mm.; depth 28 mm.; head 26 mm.; eye 5 mm.; snout 11 mm.; dorsal IX, 12; anal III, 12; teeth, two big canines above and below. Color of the body olive green, with deep blue vertical line down each scale below lateral line. Entire side of head lavender blue with eight broad, dark, golden lines extending obliquely forward, that below center of eye branched. Eye glittering gold with broad, circular band of lavender. Pectorals pale greenish with red tip. Ventrals, with outer ray greatly elongated, extending to the 6th anal spine, pale pink. Spinous dorsal pale green with broad coral pink tip. Soft dorsal bright pink. Anal translucent bluish, pale, tipped with pink. Caudal dark green at base changing gradually into yellow green with a broad terminal band of coral pink.

Xyrichtys venustus (Poey)

One specimen, July, 1934. Length 53 mm.

SCARIDAE

Scarus gnathodus (Poey)

Several seen while diving and with the water-glass.

Scarus taeniopterus Desmarest

Several seen while diving and with the water-glass.

Scarus croicensis Bloch

One specimen, July, 1934. Length 23 mm.

Pseudoscarus guacamaia (Cuvier)

Several seen while diving and with the water-glass.

Sparisoma abildgaardi (Bloch)

Several seen while diving and with the water-glass.

Sparisoma chrysopterum (Bloch & Schneider)

Several seen while diving and with the water-glass.

Sparisoma flavescens (Bloch & Schneider)

One specimen caught in a seine, July 6, 1932. Length 32 mm.

Sparisoma radians (Cuvier & Valenciennes)

One specimen, July, 1934. Length 34 mm.

GOBIIDAE

Bathygobius soporator (Cuvier & Valenciennes)

Fifteen caught in tidepools, July 9, 1932. Lengths:

1 fish of 6.8 mm.
1 " " 15.7 mm.
12 " " 25 to 55 mm.
1 " " 58 mm.

In specimens of 6.8 and 15.7 mm. in length, the following observation was made: In the smallest fish the pectorals are homogeneous, there being no hint of the separated upper rays. In the larger there are three rays quite well separated, but all flattened, surrounded with membrane and branching into a Y-shape at the tip. Apparently the young are not dependent on these for respiratory aid as in the adults.

One specimen, July, 1934. Length 22 mm.

DACTYLOSCOPIDAE

Dactyloscopus tridigitatus Gill

Two specimens caught in seine, July 9, 1932. Lengths 50 and 56 mm.

Gillellus, new species

(For description see page 222.)

CLINIDAE

Labrisomus nuchipinnis (Quoy & Gaimard)

Two caught in tidepool, July 9, 1932. Lengths 19.5 and 120 mm.

BLENNIIDAE

Salarichthys textilis Quoy & Gaimard

Twenty-one caught in tidepool, July 9, 1932. Lengths 25 to 55 mm.

Rupiscartes atlanticus (Cuvier & Valenciennes)

Two specimens caught in tidepools, July 9 and 11, 1932. Lengths 40 and 42 mm. Color of eye iridescent, lemon yellow. Cirri on head and lower lip coral pink; brown and black spot immediately behind the eye. Body vinaceous brown faintly mottled, with about nine indistinct upright bands of cream. Pectorals are a dusky cream with tips of lower six rays a coral pink. Dorsal spines with a broad terminal band of pink, basal two-thirds a bright greenish yellow, with spines and rays showing as dark purplish streaks. Most of the terminal half of dorsal rays greenish yellow, upper rays and caudal touched with pink.

Specimen No. 104. Color taken after 24 hours: Upper part of first six dorsal spines bright salmon pink, as is also the lower half of pectorals. Ventrals, dorsal and anal dusky. Caudal grayish like body, with first few upper rays yellow. Ocular and nasal cirri salmon pink. Ocelli back of eyes dark blue with a posterior border of salmon. Body mottled gray with seven narrow vertical lines of light at regular intervals, from pectorals to anterior of caudal peduncle.

After two years in preservative the larger specimen has lost the vertical lines and those of the smaller are very indistinct. These two fish now resemble the more uniform color described by other authors.

Ophioblennius ferox Beebe & Tee-Van

Two specimens taken at night light, July 7, 1932.

Antares No. 53: Length 44 mm.; depth 9.3 mm. (4.75); head 10.8 mm. (4); eye 3 mm. (3.6); snout 3 mm. (3.6); maxillary 3.8 mm. (2.85); interorbital 2.4 mm. (4.5); dorsal XII, 20; anal II, 20; pectoral 16; ventral I, 2; cirri: supraocular, one simple; narial, single with 4 fingers; nuchal, two singles on each side. Lateral line extends to 2nd dorsal ray. Body in life vermilion, after capture becoming almost transparent.

Blennius sp.?

One specimen taken at night light, July 6, 1932. Length 16 mm.

Blennius cristatus Linnaeus

One specimen caught in tidepool, July 9, 1932. Length 24 mm.

BALISTIDAE

Balistes vetula Linnaeus

One seen when diving.

MONACANTHIDAE

Monacanthus tuckeri Bean

Twelve caught in trap in 4 fathoms of water, July 6, 1932. Length 26 mm.

Monacanthus hispidus (Linnaeus)

One specimen taken at night light, July 7, 1932. Length 19 mm.

OSTRACIIDAE

Lactophrys quadricornis (Linnaeus)

One caught in seine, July 6, 1932. Length 222 mm.

Lactophrys triqueter (Linnaeus)

One caught in seine, July 6, 1932. Length 145 mm.

TETRAODONTIDAE

Sphaeroides spengleri (Bloch)

One caught in a dredge, July 11, 1932. Length 31 mm.

CANTHIGASTERIDAE

Canthigaster rostratus (Bloch)

Several seen while diving and with the water-glass.

DIODONTIDAE

Diodon hystrix Linnaeus

One specimen caught in seine, July 8, 1932. Length 280 mm.

A NEW DWARF SPECIES OF STAR-GAZER

FAMILY DACTYLOSCOPIDAE

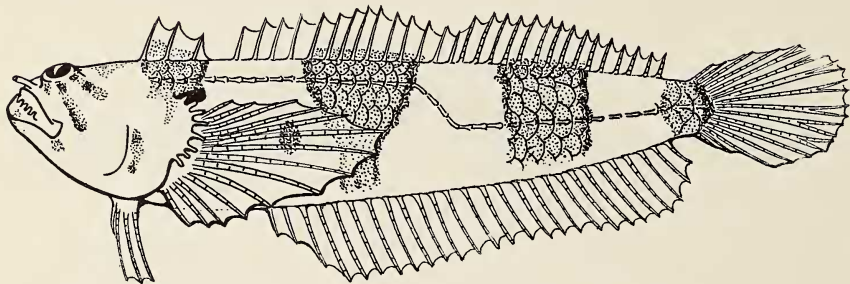
Gillellus quadrocinctus, new species

Fig. 27. *Gillellus quadrocinctus*. (Drawing by John Tee-Van)

TYPE: No. 180, *Antares* Expedition, Union Island, Grenadines, B.W.I., July 12, 1934. Standard length 31 mm. Type in the collection of the Department of Tropical Research of the New York Zoological Society.

FIELD CHARACTERS: A small Dactyloscopid, pale flesh in color, with head slightly dusky, two dusky lines radiating down and back from the eyes, and four conspicuous, vertical, black bands on the body, the second saddle-shaped, the posterior occupying the caudal peduncle. Fins almost immaculate.

MEASUREMENTS AND COUNTS: Total length 37 mm.; standard length 31 mm.; depth 6 mm. (5.15 in length); head 9 mm. (3.43 in length); eye 1.5 mm. (6 in head); interorbital space .75 mm. (12 in head); snout 1.6 mm. (5.6 in head); maxillary 3.3 mm. (2.57 in head); pectoral ray count 14; pectoral fin length 8 mm.; pelvic fin count I, 3; pelvic fin length 4.29 mm.; dorsal fin count III-XIV, 15; anal fin count II, 25; caudal fin length 6.43 mm.; caudal fin rays 16, 9 dorsal and 7 ventral.

GENERAL BODY SHAPE: Head heavy with its dorsal profile sloping gently forward, the ventral steep, following the oblique angle of the mouth. Anterior half of body with profiles almost parallel, narrowing very slightly posteriorly to a thick and abrupt peduncle.

EYES: Typical of the family, larger than usual, well elevated above the surface of the head and directed at an upward angle of about 90 degrees.

TEETH: Small, numerous, even, sharp-pointed, slightly recurved.

NRIL TUBES: Long, slender, directed forward, arising in front of each eye, about one-third of the eye's diameter from the orbit.

SCALES: Type cycloid; count about 40.

LATERAL LINE: Count $20 + 3 + 18 = 41$. Anterior and median part about equal in length, measuring 11.45 mm., respectively. First pore located midway between the first and second spine of the 1st dorsal with two rows of scales between. The lateral line extends with a slight upward curve to the posterior edge of the first dark body band which is below the twelfth spine of the 2nd dorsal. Here there is only one scale between the lateral line and the base of the dorsal fin. At this point it descends rather abruptly to the exact center of the body and then posteriorly in a straight line.

OPERCULAR FRINGES: 8.

LIP FRINGES: 9 upper; 13 lower. The lower cirri are about twice the length of the upper and overlap the upper series with the jaws closed. The upper series is arranged in the following way: right side, there are three evenly spaced along the edge of the pigmented band below the narial tube. There are three between the pigmented bands in the center of the jaw. On the left side there are two on the pigmented band and one just beyond its edge. In length these cirri are all about equal. When the mouth is closed they are directed upward. The skin in the jaw above is very loose and probably can be thrown forward when the mouth is opened, thus throwing the cirri in a downward position to act as a strainer. The lower series is arranged in the following manner: right side, there are three cirri below the eye outside the pigmented band of the upper series. A small pigmented patch is at the base of the outermost cirrus. One is in the center of the upper pigmented patch, and one on its inner edge with scattered pigment on its base. Two are in the center of the jaw. The left series is identical in position. The shortest cirri are those nearest the angle of the mouth, and these are twice the length of the upper cirri. The length of the lower series increases gradually toward the center of the jaw.

BODY BANDS. There are four conspicuous, broad, dark body bands, separated by three white interspaces posterior to the base of the pectorals. Measuring along the dorsal, the dark bands are approximately 3.5 mm. apart. All of the dark bands commence at the base of the dorsal fins, a light shading of the pigment extending for a short distance up the base of the dorsal elements. The first dark band begins just behind the head and extends along the entire base of the 1st dorsal fin; the second begins at the fifth spine of the 2nd dorsal fin and extends posteriorly to the base of the twelfth spine. Its dorsal width is twice that of the ventral (5 mm. to 2.1 mm.). In general appearance it is saddle-shaped and, unlike the two other posterior bands, the lower edge does not extend to the ventral outline of the body. It extends over the fifth, sixth, and seventh anal rays but with a distinct light area between. The third body band is rectangular in shape (3.57 mm. wide) and extends from the fourth to the ninth dorsal ray and, ventrally, from the fourteenth to the nineteenth anal ray. Here the pigmentation fades but there is not the obvious clear area as seen below the second band. The fourth band arises at the posterior edge of the dorsal and anal fins, and covers the entire caudal peduncle. It extends over the bases of the caudal rays and comes to a point, posteriorly, in the mid-line. Anteriorly, the vertical edge is curved slightly forward. The pigmentation is complete dorsally and ventrally.

HEAD PIGMENTATION: Whole head faintly and irregularly dusky back to the beginning of the first dark band. Darker areas occur close around

the eyes, two broad bands extending down and back from the eyes, and two indistinct spots on the center of the opercles.

FIN PIGMENTATION: The caudal, anal and ventrals are clear. The pectorals have an irregular, median, vertical blotch extending over the rays and membrane of the fourth to the seventh ray. The first dorsal is slightly pigmented or dusky above the dusky area of the head. The rest of the dorsal is clear above the white body areas and dusky above the dark body bands.

DORSAL FINS: The origin of the first dorsal fin is on the posterior part of the head. It is a little behind the mid-distance between the posterior edge of the eye and the posterior edge of the dark opercular spot above the base of the pectorals. It is composed of three spines which are all connected with a distinct membrane. The first spine is the longest (2.29 mm.). The second is slightly shorter (2.15 mm.) and the third the shortest (1.43 mm.).

The origin of the second dorsal is directly above the posterior base of the pectoral fin. The anterior spine is heavier and longer (1.72 mm.) than the posterior spine of the preceding fin. This second series is composed of fourteen spines. The length of the spines increases gradually from the anterior to the center of the series where the longest is 2.86 mm. They become gradually shorter toward the posterior where their length (1.43 mm.) is less than the short anterior spines. There are fifteen rays in the second dorsal. The anterior ray (2.57 mm.) is almost twice the length of the posterior spine just in front of it. The length of the rays increases only slightly in the center of the series and, posteriorly, diminishes to a short ray (1.29 mm.).

ANAL FIN: This fin is composed of two spines and twenty-five rays. Its origin is below the third dorsal spine of the second dorsal series. The anal extends posteriorly to below the dorsal posterior ray. The longest and heaviest rays are the anterior ones.

VENTRAL FINS: The ventrals have one spine and three rays. The spine is difficult to distinguish from the base of the first ray. The position of the ventrals is jugular and mid-way between the posterior end of the maxillary and the base of the ventralmost rays of the pectorals.

OPERCULAR PROJECTION: Between the dorsal end of the pectorals and the lateral line are, one on each side, two fleshy tube-like structures which are heavily pigmented; in fact, the darkest area on the body. Anteriorly, they are partly overlapped by the dorsal end of the opercle and its fringes. They project obliquely backward and downward. These structures may be accessory breathing tubes used in conjunction with the labial fringes when the fishes are buried in the sand.

The one specimen of this new species was caught with a dip-net, ten feet from shore, in water one and one half feet deep, with a sandy bottom and overhanging rocks. The color of the bands just after capture was black.

COMPARISON WITH OTHER FORMS: Unless we are to erect a new genus for this individual we must ignore, and rightly we think, some of the characters which are supposed to differentiate the genera *Gillellus* and *Cokevidia*. The discontinuous dorsal fin sets it certainly apart from *Dactyloscopus*. In the presence of well-developed labial fringes it is closer to *Cokevidia*, but this is a distinction of degree, not of kind, for fringes are found, at least slightly developed, in *Gillellus semicinctus*.

It is closest to Longley's recently described *Gillellus rubrocinctus* of unknown length, taken in Florida, but is shorter and more robust and with a smaller eye. It differs radically in color, the bands being maroon in the Florida fish but black in our specimen. Ours has in addition four instead of three post-cephalic bands, and these differ in extent, our second body band being about three times as wide as the corresponding one in *rubrocinctus*.